HAZUS HOT ZONE

May 2009 Issue

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Using HAZUS-MH to Illustrate Earthquake Risk

The Federal Emergency Management Agency (FEMA) encourages Indian Tribes to prepare pre-disaster mitigation plans. The Pala Band of Mission Indians has shown an exceptionally proactive approach to emergency management by implementing many mitigation strategies and maintaining their mitigation plan.

With the assistance of Jamie Caplan Consulting, the Pala Emergency Response Committee (PERC) and the Pala Business Office and GIS Office updated their 2006 mitigation plan. The plan took into consideration eleven different hazards and examined nine critical facilities. Of the eleven hazards, earthquake, flood, wildfire and landslide proved to present the highest risk to the reservation. The Pala Band of Mission Indians' Reservation is located in northern San Diego County roughly 30 miles east of the Pacific Ocean. Established in the early 1900s, the reservation covers an area of approximately 13,000 acres. The Tribe has approximately 979 enrolled members, over 600 members live on the Reservation. The exact population on the Reservation is not known; because non-tribal members and migrant workers live on the Reservation. The Tribe owns the renowned Pala Casino Spa Resort. This Resort is the Tribe's primary source of revenue and is located along the San Luis Rey River.

HAZUS-MH was used for earthquake analysis, to show potential damages to buildings and infrastructure and to estimate economic losses. Gale Foss conducted all of the data gathering and risk assessment analysis. Mr. Foss chose a magnitude 7.1 earthquake, the highest probable for the region, and placed the epicenter within the boundaries of the Pala Reservation. Data for the earthquake scenario came with HAZUS-MH and included 2000 census tract data for demographics and building stock inventories.

HAZUS-MH analysis confirmed fears of potential damage due to earthquakes. "HAZUS estimates that about 5,262 buildings will be at least moderately damaged. This is over 22% of the total number of buildings in the region. There are an estimated 382 buildings that will be damaged beyond repair. The model estimate showed that 98 households would be displaced due to the earthquake."[1] HAZUS-MH estimated the level of debris generated by this earthquake scenario to be about 25 tons or one truckload.

HAZUS-MH earthquake loss results are in Table 1. The losses are expressed in terms of loss ratios (expected loss divided by total replacement values). A loss ratio of less than 1% corresponds to slight damage, a loss ratio of about 10% corresponds to moderate damage, and a loss ratio of 20% corresponds to extensive damage and a loss ratio of 40% or higher corresponds to catastrophic damage. The PERC discussed mitigation strategies and emergency management protocols while looking at several earthquake scenario maps produced by the HAZUS-MH analysis. The maps gave the committee members a good visual understanding of potential shaking amounts and debris generation. The maps were used to illustrate the need for additional data for more detailed analysis. In addition, the Tribal leaders got an understanding of the power and value of the HAZUS-MH methodology and will consider using it in their Regional Operation Center.

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FEMA

2009 2nd Quarter HAZUS User of the Year

Cathy Walker
HAZUS User of the Year

Congratulations to Cathy Walker, the 2009 2nd Quarter HAZUS User of the Year. Walker is a GIS analyst at the State of Washington Military Department, Information Technology (IT) Division, Geographic Information Systems (GIS) Section. She has been a HAZUS-MH user and champion for many years and recently assumed leadership of the Washington HAZUS User Group (WAHUG). Her involvement has helped jump-start the WAHUG and brought new excitement and enthusiasm into the group.

Since working with the Washington Emergency Management Division and now for the IT Division of the Washington Military Department, Walker has had the opportunity to conduct HAZUS-MH analysis for both the flood and earthquake hazards. The reports generated from these HAZUS-MH analyses have been used at other state agencies within the state of Washington to determine the risk and vulnerability of buildings considered critical to the operation of these agencies. In addition, Walker has had the opportunity to provide HAZUS-MH analysis in support of the Regional Catastrophic Planning Team efforts currently in progress for the Puget Sound region. Walker has a certificate in GIS and Spatial Modeling from the University of Washington-Tacoma and is pursuing a Master of Science degree in Geographic Information Science from the University of Denver.

Cathy Walker's motivation and enthusiasm for HAZUS-MH and her leadership of the Washington HAZUS User Group make her an outstanding HAZUS-MH champion. FEMA is proud to recognize Cathy Walker as the 2009 2nd Quarter HAZUS User of the Year.

HAZUS User Groups

Since 1997, HAZUS User Groups (HUGs) have been formed throughout the nation. The HUGs are led by volunteers. HUGs provide a mechanism for creating partnerships between public and private sector organizations and industry. Through HUGs, mutually beneficial alliances are formed, and goals and projects are identified.

World HUG

FEMA Region I
Northeastern HUG

FEMA Region II
New York Metropolitan Area HUG

FEMA Region III
Delaware HUG
Maryland HUG
National Capitol Region HUG
Pennsylvania HAZUS Network
Southeast Pennsylvania HUG
Three Rivers HUG
Virginia HUG

FEMA Region IV
Florida HUG
(Southeast) HAZUS Technical Team
North Carolina HUG
South Carolina HUG

FEMA Region V
Central U.S. HUG

FEMA Region VI
Arkansas HUG
Louisiana HUG
Texas HUG

FEMA Region VII
Heartland HUG

FEMA Region VIII
Big Sky HUG
Salt Lake HUG

FEMA Region IX
Bay Area HUG
California Valley HUG
Hawaii HUG
Nevada HUG
San Diego HUG
Southern California HUG

FEMA Region X
Oregon HUG
Washington HUG

Success Story: South Carolina

HAZUS User Group Develops from the Successful CDMS Web Portal Project

South Carolina Emergency Management Division (SCEMD) Risk Assessment Coordinator Melissa Berry used the momentum from the Comprehensive Data Management System (CDMS) Web Portal project to form the South Carolina HAZUS User Group (SCHUG) in October 2008. HAZUS User Groups are public-private partnerships formed for the purpose of using HAZUS-MH as a catalyst to advance emergency management in public and private sectors. The SCHUG will increase the coordination and collaboration between statewide emergency managers, GIS users, and educational institutions in the State of South Carolina.

To develop the SCHUG, Ms. Berry contacted all forty-six counties in South Carolina as well as the individuals participating in the CDMS Web Portal project and those in South Carolina who have been trained in HAZUS-MH. Ms. Berry introduced them to the HAZUS User Group concept and encouraged their participation in the SCHUG.

The mission of the SCHUG is to use the HAZUS-MH software to reduce the loss of life and property caused by natural and technological hazards in South Carolina through its implementation into the preparedness, response, recovery, and mitigation stages of emergency management.

Read the whole success story and learn more about the SCHUG at **http://www.usehazus.com/schug.**

Using HAZUS-MH to Illustrate Earthquake Risk

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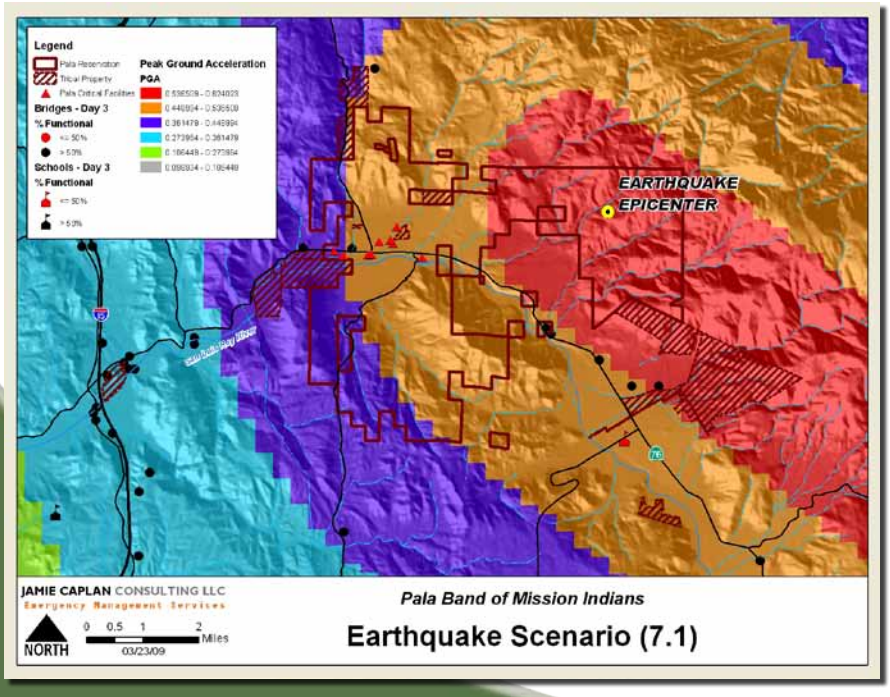
Table 1 Earthquake Return Period Losses

Category	Return Period for the Earthquake							
	100	250	500	750	1000	1500	2000	2500
Residences	5.2%	10.9%	15.2%	18.5%	21.0%	24.6%	29.2%	32.6%
Commercial	14.9%	28.8%	38.6%	44.3%	48.8%	55.9%	62.3%	68.5%
Industrial	13.1%	24.4%	32.5%	38.1%	41.9%	48.8%	54.4%	60.0%
Overall	6.1%	12.5%	17.3%	20.8%	23.5%	27.5%	32.2%	35.9%

In order to conduct a HAZUS-MH Level 2 analysis the tribe needs soil maps and additional demographic data. "Local geological data in the form of soil maps depict the effects of ground motion on local soils, landslide, and liquefaction. Soil maps describe the surface soils in your area. In order to improve the analytical capabilities of the HAZUS-MH earthquake model, local soil data must replace the general assumptions made in HAZUS-MH. You can refine the data in HAZUS-MH in two ways: (1) changing the soil type assumption provided with HAZUSMH, or (2) importing a soil map into HAZUSMH. The most refined analysis is produced by the second option."[2] The Pala Band of Mission Indians intends to gather additional data to conduct more detailed analyses using HAZUS-MH in the future.

[1] *HAZUS-MH Earthquake Event Report, Elsinore Fault Zone 7.1.*

[2] *FEMA 433 Using HAZUS-MH for Risk Assessment, August 2004, Step 2.*



Training Information

Advanced HAZUS-MH for Flood

Course Number: E172

JULY 27–30, 2009

This course provides in-depth instruction and hands-on exercises that develop the skills needed to effectively use HAZUS-MH for modeling the impacts on communities from riverine and coastal flooding. Following a review of the hazard development process, the course will explore the multitude of maps, tables, and reports that HAZUS-MH generates with a focus on how to interpret the wealth of information provided in these outputs.

Application of HAZUS-MH for Risk Assessment

Course Number: E296 ***AUGUST 3–6, 2009***

This course provides participants with an understanding of how they can use the HAZUS-MH risk assessment methodology and tools to assist them in their efforts to conduct the community risk assessments that are necessary to be compliant with the ongoing requirements of the Disaster Mitigation Act of 2000. The course includes hands-on computer exercises using the HAZUS-MH software and other tools such as the HAZUS-MH Risk Assessment Tool and Flood Wizard to perform risk assessment-related tasks.

Comprehensive Data Management

Course Number: E317

SEPTEMBER 14–17, 2009

This course will include an in-depth discussion of the methodologies that were used to develop and compile the HAZUS-MH provided inventory and it will identify the issues associated with using that inventory for purposes other than those for which it is intended. A significant portion of the course will be devoted to exploring a variety of strategies and techniques for updating both the site-specific and aggregate inventory with local data.

HUG Updates

HAZUS User Group development continues in part to the nationwide collaboration of HUG Leaders. All HUG leaders are encouraged to participate in the FEMA sponsored monthly conference calls. For a schedule of these calls visit: http://www.usehazus.com/hugs/calls/.

The North Carolina HUG (NCHUG) is planning to hold their first in-person meeting at the 2009 HAZUS Conference in August. The San Diego HUG (SDHUG) is exploring the possibility of a meeting at this year's ESRI Conference in July 2009. The San Francisco Bay Area HUG (BAHUG) is actively participating in the Bay Area Earthquake Alliance (which may get renamed to the California Earthquake Alliance). October 2009 is the 20th Anniversary of the Loma Prieta Earthquake and the BAHUG anticipates many earthquake awareness activities related to this anniversary. The Southern California HUG (SoCalHUG) Meeting on March 11, 2009 had over forty people in attendance. They even used Adobe Connect to include participants via an online connection.

In the near future, HUGs will be formed in Alaska and Maryland. The Louisiana HUG is soon to be revitalized and the Central U.S. HUG (CHUG) is expanding to have groups in each of the states in FEMA Region V. The goal for 2009 is to have HAZUS User Groups in each of the fifty United States.

All HUGs are looking for new members. To find a HUG in your area visit http://www.fema.gov/plan/prevent/hazus/hz_users.shtm or contact HAZUSUserGroupHelp@jamiecaplan.com.

HAZUS Conference Events in 2009

The HAZUS-MH exhibit, along with HAZUS presenters and representatives, makes appearances at various conferences and trade shows throughout the year. Stop by the booth to hear about the latest HAZUS news, software updates and information about training courses.

ASFPM Annual Conference
(HAZUS Booth)
June 7–12
Orlando, Florida
www.floods.org/Conferences,%20Calendar/Orlando.asp

ESRI International Conference
(HAZUS Booth)
July 13–17
San Diego, California
www.esri.com/events/uc/index.html

NACO Annual Conference
(HAZUS Booth)
July 24–29
Nashville, Tennessee
www.naco.org/Template.cfm?Section=Annual

3rd Annual HAZUS Conference:
Connecting the Pieces for Mitigation
August 10–12
Raleigh, North Carolina
www.fema.gov/plan/prevent/hazus/hz_trngconf.shtm

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